

## Trends in the Use of Information Resources at the Universitas Sumatera Utara Library

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Information technology encourages the rapid growth of information, especially electronic information. The growth of this information significantly influences the growth and development of higher education library collections. The general phenomenon shows the tendency of higher education library users to use electronic information resources and this is predicted to be higher than the use of printed resources. This tendency needs to be further investigated, because it does not apply to all types of collections. This study aims to reveal the tendency of students to use information resources at the USU Library. The results of this study are expected to be beneficial for the policy of developing college library collections, providing facilities and improving services to users in this digital era.

The method used in this study is a survey method and questionnaire used to collect data. Samples are determined using Taro Yamane formula. The number of samples is 392 with details of 224 students from the exact study program and 168 students from non-exact study program. Analysis data. Data processing uses SPSS version 17 application program. Data analysis uses chi-square statistics.

The majority of students tend to use electronic information resources more than printed information resources; but for textbook types, they are more likely to use printed books than e-books. There's a tendency for students in the exact sciences study program to use electronic information resources more frequently than non-exact sciences study program students. The majority of students stated that it was easier to find the electronic information resources, but it was more convenient to read printed information resources.

The concept of hybrid library is very appropriate to be implemented in building and developing college library services. Diversification of library service is required in the development of university library.

**Keywords:** Library Use, Information Resources, Prints Resources, Electronics Resources

### 1. INTRODUCTION

The existence of information technology in the library has a broad impact on all aspects of library services. Information technology has an impact on library management (Aremu & Saka, 2006), on the role of libraries (Singh and Nazin, 2008), library housekeeping (acquisition, cataloging, indexing, serial control, circulation etc.) and the quality of library services (Rasul & Sahu, 2011). Library services now must utilize information technology infrastructure such as the internet and use computer devices and other equipment in order to access various electronic information resources available in both the library and in cyberspace. In addition, the presence of information technology in the library also influences user behavior, especially in the search for information (Manikandan, Esmail & Nagarajam, 2013), the competence of librarians and / or library staff (Khoo, 2005) and also the development of higher education library collections (Thornton 2000).

Information technology encourages the rapid growth of information, especially electronic information. The growth of this information significantly influences the growth and development of higher education library collections. The presence of electronic information resources in college libraries can be a new challenge. The establishment of

paper-based information resources is challenged by electronic information resources that offer different ways of storing and retrieving information (Hasugian, 2008) and can be new opportunities to enrich the availability of printed information resources that previously dominated library collections.

Various types of information resources in the library are provided for use by users. Library materials such as books, journals, magazines, research reports and so on both printed (print resources) and electronics (e-resources) such as e-books, e-journals can be used by users. Users are free to choose according to their needs.

Substantially, both printed and electronic library materials contain information, but the method of use and method of access are different. Some researchers of electronic information resources (e-resources) such as Shim (2001), Ibrahim (2004), Johnson et.al (2012), stated that electronic information resources (e-resources) are all information resources or information-recording media which access requires electronic equipment, especially computers, either personal computers, mainframes, or hand-held mobile devices. These information resources can be accessed via the internet or a local network without the users being present in the place or location where the media is placed (remote access). Electronic information resources can be accessed all the time because it is not limited by space and by the number of users (unlimited access). The disadvantage is that access to electronic information resources is highly dependent on electricity, computer equipment and information-technology infrastructure.

On the other hand, printed-information resources access is limited by time, place and number of users. It is not possible for a printed book, for example, to be read by two people at the same time. However, the benefit is that it can be read without having to depend on the internet, electricity and other information technology equipment. The obvious difference between electronic information resources and printed information resources, in addition to the different physical forms, is how they are accessed and used.

The general phenomenon shows the tendency of library users, especially in college libraries, to use electronic information resources both scientific and non-scientific. Interest in utilizing electronic information resources in scientific communication is currently growing (Al-Umut, Soydal & Tonta, 2010). The use of electronic information resources in a number of higher education libraries tends to increase compared to the printed ones. Research by Zha, Li & Yan (2012) in a number of university libraries in China shows an increase in the use of electronic resources, while the use of printed information resources tends to decrease.

A similar phenomenon also occurs at the Universitas Sumatera Utara Library (USU Library). Data on the use of information resources in the USU Library in the past five years shows that the use of printed information resources tends to decrease while the use of electronic information resources has increased very significantly (Universitas Sumatera Utara, 2017).

The use of printed and electronic information resources at the USU Library is an interesting phenomenon to be studied. The use of electronic information resources increased, even though the number of electronic-collection items owned was very small (28.3%), compared to the number of printed collections (72.7%) of the total collections owned by the USU Library. In this context, the use of printed information resources should be higher than electronics. However, the opposite happens. Why users use electronic information resources more, what drives them and what satisfaction the users get from using electronic information resources is an interesting to be studied.

Although there has been an increase in the use of electronic information resources compared to printed information resources, the increase did not occur for all types of information resources. For the use of books, the situation is precisely reversed. Of around

6,220 titles of electronic format books (e-books), only around 1,796 titles were used and / or read in 2017, so the turnover rate was 0.29. This means that only 29% of the total e-books were read or used by users during 2017. While for the printed books, from around 574,177 printed books, 307,615 copies were borrowed during 2017. So, the turnover rate was 0.53. It means 53% of the total printed books owned by USU's Library were borrowed by users. This data does not include books that were read in the reading room. The data above illustrates that the phenomenon of the increasing tendency to use electronic information resources compared to the use of printed information resources cannot be taken for granted, but needs further investigation. Another issue related to this phenomenon that is interesting to be investigated is related to the needs and satisfaction of users of text books both printed and electronic.

Meeting the needs and satisfaction of users utilizing information resources and other facilities tends to increase the frequency of library service use (Martensen & Gronholdt, 2003). Book loan data of USU Library in 2017 shows that the frequency and amount of book loans varies greatly. Of the 22,011 borrowers, there are library members who borrow 187 copies of books per year, but many borrowed only 1 copy per year. Many library members never borrowed. The average book loan was 11 copies in 2017. It was less than 2016 which was 12 copies per year (Universitas Sumatera Utara, 2017).

Another issue related to the use of information resources at the USU Library is that the number of students borrowing books tends to decrease in the last three years, so the participation of students who have borrowed books at the Library is still far from the expected numbers. The data in the following table illustrates the decrease in the number of students borrowing at the USU Library in the last three years and the percentage of student participation in borrowing books or circulation per capita.

Table 1 Percentage of Student Participation in Borrowing Printed Books and the Number of USU Library Members

No	Description	2017	2016	2015	average (%)
1	Number of Borrowers	21.346	22.011	21.842	<b>53,05</b>
2	Total Number of Library Members	45.420	44.246	35.013	
	Percentage of Student Participation in Borrowing Books	47,00	49,75	62,38	

The data above shows that the percentage of student participation in borrowing books in the library has tended to decline over the past three years. The average percentage of participation of library member students who borrowed books at USU's Library was only 53.05%. So, there were 46.95% of students had not borrowed printed books.

### Problem Formulation, Objectives and Benefits

The explanation above identifies and reveals a number of problems related to the use of printed and electronic information resources in the university library, especially at the USU Library. Increased use of electronic information resources that far exceeds the use of printed information resources in libraries needs to be further investigated because it does not apply to all types of collections.

The data shows that there is a decrease in the participation of the number of students who borrow text books by 6.19% every year. The participation of students who have borrowed books in the library is still far from the expected. The problem is, why don't they use the printed textbooks provided at the library? Is it because they use electronic textbooks (e-books), or buy themselves, or do they not use them at all? To respond to the various issues

above, this research aims to reveal the tendency of students to use information resources in the Higher Education Library, especially at the USU Library.

The performance indicators of library service are measured by the extent to which the information resources provided are utilized by the users. Any sophisticated library if not used by users will be in vain. Therefore, the results of this study are expected to be useful in generating input for policies for developing university libraries in the field of collection development, providing facilities and improving services to users in order to face the evolving digital era. The results of the study are original because they are based on data and facts from the results of field research which are processed using statistical applications.

## 2. LITERATURE REVIEW AND PROPOSED HYPOTHESES

One of the main components in a library system is the user. The study of users has a long history of library services and is a standard reference for library planning, construction and development. The study of library users was initially limited to knowing who the users were, but later it increased to the question, "who, what, when and where" of library use (Martin, 1976). In subsequent developments, library user studies have become themes that have always been discussed in various research activities and scientific seminars. The study of user-oriented quality services became an interesting theme in university libraries context in the twenty-first century (user-oriented quality services in 21st century libraries) (Bharucha, Bansidhar & Shroff, 2012). At present, the main indicator that is always used to measure the performance of a library and / or other information service institutions is the user.

Research Jubb and Green (2007) state that university libraries have played an important role for centuries in supporting research for all disciplines and subjects at a university. However, in the last decade there have been major changes, especially in the academic community including researchers in using library services due to the development of technology and the availability of information resources online. The services provided by the university library to the community has also changed. Library services that initially focused on information resources the library owned, now can be extended to information resources available outside the library. Technology developments and the online information resources enrich and broaden access to information and knowledge.

The way an individual chooses and uses a media (including library materials) is one of the objects of research of the uses and gratification theory (Roy, 2009). Why someone chooses to use or not use a media, a fundamental question that will be answered with this theory. Media in this case is seen as something that is neutral and optional that may be chosen to be used or not used.

The theory of uses and gratification seeks to understand why people use different forms and types of media (Ruggiero, 2000). Lazarsfeld in his research attempts to answer the question why people choose to use or not use the media that is available to them. This question arises from a number of studies that have been conducted, including research conducted to see the use of radio in the emerging era of popular mass media (DeFosse, 2012).

Experts describe the fundamental difference between the uses and gratification theory and before that lies in a fundamental philosophical question. The philosophical question in the uses and gratification theory is "What do people do with the media?" which is different from the previous theory which questions "What does media do to people?". This theory assumes that not only is the pleasure sought by users in the media, but also its attitude towards the media and its contents.

The main purpose of the uses and gratification theory is to explain and understand the psychological needs that shape a person's reasons for using certain media or information resources. Another goal is to find out how individuals use media to get satisfaction because



their needs are met and to identify positive and negative consequences experienced by media users (Lin. 2009). Based on these objectives, with the use and gratification theory it can be predicted the tendency of a user to use certain media or information resources, so that there are times when users who are of different gender, age, education, profession and so on may also have different tendencies towards the utilization of certain information resources.

Researchers Oyesiku and Oduwale (2004) at the Library of Olabisi Onabanjo University stated that male students tend to use the library more often than female students. Julien's research (2000) shows that college library users in general are active learners who participate more actively in class, like reading, writing and study harder. The results of this study illustrate that different demographic characteristics of users can cause different tendencies in using information resources and facilities available in libraries.

Al-Umut, Soydal and Tonta (2010) research at Hacettepe University, Ankara Turkey in 2010 on the use of electronic information resources especially e-books shows that e-books in the medical field are most often used, followed e-books in the field of education and language and literature. E-books in other fields of science are rarely used because users prefer printed material. The findings of this study indicate that there is a tendency for medical students to prefer e-books over printed books. So, the policy of developing university library collections in the medical field should focus on electronic information resources.

Liu's research (2006) at San Jose State University, Washington Square, USA in 2004 stated that the majority of postgraduate students at the university used printed and electronic resources simultaneously. The frequency of reading and use of printed information resources and electronic resources varies between different disciplines. Postgraduate students expect a combination of printed and electronic resources (hybrid). The findings of this study illustrate the tendency of students to use printed and electronic information resources is comparable.

Ibrahim's research (2004) in the United Arab Emirates University (UAEU) Library in 2004 stated that the frequency of using electronic information sources was low and one of the causes was the ineffective communication network (information infrastructure). The low use of electronic information resources is due to the technical facilities supporting information services such as networks (cable and / or WFI), internet bandwidth, computer terminals and other technical facilities that are unsupportive. This research shows that the tendency of using electronic information resources is greatly influenced by various aspects, especially those related to information infrastructure and technology.

The presence of new technology and a number of databases and systems that are always changing to access information make library services increasingly complex. The availability of information resources is no longer limited only to those owned but can extended to various information resources that are scattered in many places. The abundance of information resources not only provides easy access, but is also accompanied by difficulties for users to choose and assess information that is relevant to their needs. So, the use of printed and electronic information resources becomes an interesting study and often appears in library studies, especially related to information technology.

The presence of information technology, especially the internet, and the availability of various types of electronic information resources led to a new reading behavior which is e-reading. Rainie et.al. research (2012) in 2012 stated that e-reading continues to increase, 21% of adults in the United States have read e-books, and the ownership of other computer / electronic devices that can read e-books continues to increase significantly, and there are four times more people reading e-books today (in 2012) compared to the previous two years.

Martensen's and Gronholdt's (2003) research of undergraduate students from five Danish college libraries with special attention to the Copenhagen Business School Library in 2003 showed that the main factors determining the quality of library services and user

satisfaction were: electronic information resources, and collection of printed publications. Satisfaction of electronic information resources, related to various facilities and advantages that exist in the e-resources. In addition, the results of this study prove that user satisfaction is influenced by six determinant factors, namely: electronic resources, collection of printed publications, other library services, technical facilities and library environment.

The research of Berg, Hoffmann and Dawson (2010) and Christianson and Aucoin (2005) states that interactivity is the advantage of e-books from printed books, namely the availability of tools or tools for editing, hyperlinks and search capabilities, and if this feature works well then will be easily understood by users. The Nariani study (2009) reported that 41.1% of students surveyed and 30.3% of lecturers said hyperlinks to citations in books or links to other books" (interactivity) were very interesting and important features in the use of e-books.

Roesnita and Zainab's research (2005, 7-18) to undergraduate students from the Faculty of Computer Science and Information Technology, University of Malaya (UM), regarding using and/or not using e-books provided by the University of Malaya Library, shows that the majority of students (55%) have used e-books services provided by the library on the grounds that they are easy to access, easy to find relevant information, convenient, economical, user friendly, saving time, and a good alternative services for library users. However, there are 18% prefer printed books to e-books because they are easier and more comfortable reading printed books.

Based on a literature review and a description of the relevant research results and findings above, the following research hypotheses were developed and proposed: "It is suspected that there are significant differences in the use of information resources based on the characteristics of the user study program at the USU Library". The characteristics of the user study program referred to are the exact sciences and non-exact sciences. That is, it is suspected that there are differences in the use of information resources by students studying in the exact study programs compared to the students studying in the non-exact study programs.

### 3. RESEARCH METHOD

The method used in this study is a survey method with samples and data collection techniques is through the distribution of questionnaires to respondents. The approach used in this research is a quantitative approach.

The research population was all undergraduate students who were registered as library members and had borrowed books from the USU Library. Based on the data obtained, there were 47 undergraduate study programs at USU, with details of 26 study programs in the exact sciences field and 21 non-exact sciences study programs. The number of cumulative undergraduate students from the 2014 to 2017 academic year registered as members of the USU Library was 33,784 students. Members who had borrowed books at the USU Library were 17,919 people or around 53.03%. So, this research population is 17,919 people. The research population is detailed based on the strata of study programs in both the exact and non-exact sciences study programs. The research population of the study programs in the exact sciences was 10,278 people and from the non-exact sciences study programs were 7,641 people. The number of sample is determined using the Taro Yamane formula as follows:

$$n = \frac{N}{N.d^2 + 1}$$

n = Number of Sample

N = Number of Population

$d =$  desired confidence level (generally 0,05 for non-exact sciences dan 0,01 for exact sciences) (Sugiyono 1998, 57).

By using the formula above, out of 17,919 populations, the number of the sample is 392 people which consists of 224 students from the exact-science study programs and 168 students from non-exact science study programs. The selection of individual samples is done by proportionate stratified random sampling technique (Sugiyono 1998, 58).

The research was conducted at the USU Library including the Faculty Branch University Library. There are 14 (fourteen) Faculty Branch Libraries which are integrated part of USU Library.

Questionnaire items were tested for validity and reliability using the computer program SPSS version 17. The data analysis was performed by using Chi-Square analysis.

## 4. RESULTS AND DISCUSSION

### 4.1 Description of Research Results on the Use of Information Resources

The use of information resources is an important variable in this study. There are two forms of questions that are used to explore patterns of information resource use by respondents, namely, the first form of questions is unscaled and open, the second is a closed form that uses a Likert Scale.

Respondents' answers to questionnaires that are unscaled and open are not used directly to prove the research hypothesis, but are used only as a support. The closed questionnaire form for the variable use of information resources is to use the Likert Scale form. Respondents can only choose one choice out of five available choices.

Description of the research data from the questionnaire is unscaled and open about the use of information resources can be seen in the following description.

#### a. Types of Information Resources Used

Data shows that more respondents that use types of electronic information resources (52.70%) compared to respondents who use printed information resources (27.40%) and use both printed and electronic resources (19.90%). Respondents who stated that they prefer to use electronic resources rather than printed information for various reasons. Reasons that can be identified from the open answers to this questionnaire are: because it is more accessible, easily obtained, fast, efficient, can be accessed via the internet, information and sources are more diverse, can be accessed anywhere and anytime, the cost is cheaper, the information is more up to date, can be accessed using a mobile phone, the time required to search is relatively shorter, the source is broad, cost effective and saves paper, can be downloaded for free.

The reasons respondents said they prefer printed information resources over electronics are: printed sources are more practical, can be carried everywhere, are more practical to use, are easier to read, information is easier to understand, electronic information obtained from the internet is sometimes unreal and less responsible, freelancing articles are often without authors so illegitimate, printed sources are more accurate and finding credible information sources on the internet is difficult, the eyes do not last long using electronic sources, reading electronic files that are tiring because of scrolling, printed sources do not make pain eye; more comfortable reading printed sources, electronic sources rely on electricity, reading printed sources more deeply, preferring and happy to read printed information resources; in general, electronic sources obtained, when going to be read, are printed first.

Reasons for respondents who chose to use both sources are: printed and electronic sources each have advantages and disadvantages; sometimes electronic information sources are more complete than printed and sometimes printed sources are more complete than electronic; the two complement each other; if the data sought is not obtained from the book, then electronic searching; printed more original but if you want to quickly search for electronics.

The tendency of respondents to use electronic information resources is not for all types of information resources. Specifically, for textbooks, the situation is actually reversed where respondents prefer to use printed textbooks rather than electronic textbooks (e-books). The data shows that the textbook format most frequently used by respondents is printed textbooks (76.70%) compared to e-books (electronic books) (14.20%) and printed books and e-books at the same time (9.10%). A number of reasons respondents prefer to use textbooks in printed format include: more printed textbooks than e-books; printed textbooks with more complete contents; easier to remember pages and chapters when reading printed textbooks; printed textbooks are easier to read; printed textbooks are available in full in the library, while e-books are few; printed textbooks are easy to choose in the library while e-books need time to download, sometimes they cannot be downloaded; printed textbooks are easier to understand, faster to capture and can be read everywhere; printed textbooks can be stored in the long run, electronic books file can be erased; printed books can be read in places where there is no electricity; can be bought or borrowed from friends or from the library; more scientific theories are available in printed textbooks; e-books are more in English, printed textbooks are widely available in Indonesian; in terms of reading, they said they can be more focused, more concentrated and faster understood than using e-books; most lecture material is in printed books; formally a more trusted printed book; more comfortable to read and not tire their eyes.

The reason for the respondents used e-books rather than printed textbooks: easy to obtain; free; e-books are practical and easy to carry everywhere; e-books are easier to use, just by entering the key word the information needed is immediately found; printed book in forestry are very limited; by using e-books they do not necessarily have to come to the library; more practical and simple; E-books are easily obtained on the internet.

For scientific journals / magazines, respondents more often use the electronic journals / magazines rather than printed ones. Data shows that respondents are more dominant in using electronic journals / magazines (68.50%) than printed formats (27.20%) and both (4.30%). The reasons respondents prefer electronic journals / magazines are: e-journals are easier to obtain and widely available on the internet; via the internet it is easy to find and get it; efficient and economical; printed journals are not updated in the library; there are more recent e-journal; more e-journals available in the library than printed ones; easier to find and more economical; more e-journals than printed journals; e-journal is widely available on the web library; e-journals in the same field of science are more widely available in various titles; More e-journals are available now.

Reasons for respondents who use printed journals rather than e-journals are: they are easier to read and do not have to scroll like e-journals; easier to obtain while for e-journals they do not understand how to use; printed journals can be read in full while the use of e-journals is limited to internet connection; have never seen an e-journal in our field of science; printed journals can be reviewed / understood longer; reading e-journals in extended period of time on a computer screen can damage the eyes. Reasons for respondents who use both e-journals and printed journals are: because using both will provide complete, accurate and extensive information; both journal forms are equally readable as long as the numbers are complete; read both because they can compare the contents and references; format is not



really an important issue. The interesting responds from open answers regarding the reasons for not using e-journal is because they do not know how to use it and there are those who claim that they have never seen e-journal in their field of study.

### b. Form and Type of Printed and Electronic Information Resources used

The types and forms of printed and electronic information resources that have been used by respondents can be seen in the following table.

Table 2 Use of Printed Information Resources

No	Types of Printed Information Resources that have been used	Yes (%)	No (%)
1.	textbooks	97,26	2,74
2.	Supporting / complementary books	88,58	11,42
3.	Fiction (Novel, Roman, dsb)	80,59	19,41
4.	Scientific journals / magazines	89,26	10,74
5.	Research report and final project, including thesis, dissertation, etc.	81,29	18,71
6.	Speech / scientific speech	50,45	49,55
7.	Popular magazine	67,12	32,88
8.	Dictionary / Encyclopedia	87,44	12,56
9.	Directory	68,49	31,51
10.	Newspaper	90,63	9,37
Percentage average		80,12	19,88

The use of information resources in electronic format can be seen in the following table.

Table 3 Use of Electronic Information Resources

No	Types of Electronic Information Resources that have been used	Yes (%)	No (%)
1.	E-Books	88,36	11,64
2.	E-Journals	84,93	15,07
3.	E-Repository: Final Project: Thesis, Thesis, Dissertation, Research Report	80,37	19,63
4.	E-Archives: Chancellor's speech, professor's speech, decision letters	36,76	63,24
5.	E-News : Online newspaper	86,53	13,47
6.	Articles from the internet	92,92	7,08
Percentage average		78,31	21,67

The data shows that all types and forms of printed and electronic information resources available both at the USU Library, including the same collection from other sources, used by users. This data indicates that the more variations and types of information resources both printed and electronic provided in the library, the more choices there are for the users and the users will be more free to choose. This is in accordance with the theory of uses and gratification which positions information resources or media as an option, users are free to choose to use or not to use it.

### c. Locus of Accessing Information Resources

Data about the place used by respondents to read, access and / or use printed and electronic information resources shows that the majority of respondents read or use the information resources they obtain are in the library building, on campus and at home (65,53 %), then at home (17.35%), at the USU Library building (13.24%) and others 0.46%. This data shows that there are three places used by respondents to read, access and use the information resources they have acquired, namely the campus, home and library building. This data also indicates that the three places are the main learning places for respondents.

The place the respondents get the information resources they need if not available in the USU Library is the majority of respondents get it from the internet (58.90%), or buy from a bookstore (22.83%), or from other libraries (15.75% ), information-management institutions other than the Library (2.28%) and from other places (0.23%). This data shows that the internet as a tool to obtain various information resources is utilized by respondents well. This data also indicates that the majority of respondents are familiar with the internet.

In addition to the USU Library, respondents also sought information resources they needed from other places. The place or locus used by respondents to find information resources (books, journals, etc.) needed in addition to the USU Library is using the internet (45.21%), Bookstores (28.54%), Public Libraries (14.84%), information-management institutions other than the Library (2.28%) and others (0.68%). The data above shows that the place or locus most frequently used by respondents is the internet. The internet has become a common location for information searches for respondents other than the USU Library.

### d. Ease and Comfort of the Use of Printed and Electronic Information Resources

The respondents mentioned that accessing, searching for and obtaining electronic information resources is easier than the printed information resources. Data shows that 90.20% of respondents agreed that accessing, searching and getting electronic information resources was easier than the printed information resources and only 9.80% disagreed. This data is synchronous with the previous data where 52.70% of respondents stated that they use more information resources in electronic format than printed format.

The ease of accessing and searching for information is not necessarily in line with the convenience of reading or using it. Respondents' answers to the questions about the reasons for choosing the types of electronic data printed resources revealed that they preferred printed information resources over electronics because of the comfort in reading or using them. Data shows that the majority of respondents (83.10%) stated that reading and using printed information resources was more convenient than electronic information resources, and only 16.90% stated otherwise. This data is in sync with previous data, where around 76.70% of respondents prefer printed textbooks to e-books for various reasons and some of them are: more comfortable / comfortable reading printed sources; not make eye pain, easy to use, easy to find pages and chapters, independent of equipment and electricity and so on.

## 4.2 Hypothesis Testing

As stated earlier, the difference in the use of information resources to be tested is based on the characteristics of the users' Study Program at the USU Library ". The characteristics of the study program referred to are the exact sciences and non-exact sciences. Based on these characteristics, hypothesis testing has been performed as follows.

### a. Differences in the Use of Information Resources Based on Study Programs

The hypothesis to be tested is, it is suspected that there are significant differences in the use of information resources based on the characteristics of users' study program at USU Library. Based on this hypothesis, the null hypothesis (Ho) states that the relationship that

occurs between the two categorical variables is not statistically significant, that is, it is suspected that there are no significant differences in the use of information resources based on the characteristics of the users' Study Program at the USU Library. While the alternative hypothesis (H1) states the relationship that occurs between the two categorical variables is statistically significant namely, it is suspected that there are significant differences in the use of information resources based on the characteristics of the users' study program at USU Library.

To test differences in the use of information resources based on user study programs, the criteria or measure of the significance level used in this study is  $\alpha = 0.05$ , so if the probability or Asymp. Sig. (2-sided) from Pearson Chi-Square  $\geq 0.05$ , then  $H_0$  is accepted and  $H_1$  is rejected. In this case, the relationship that occurs between the two categorical variables is not statistically significant. However, if the value of probability or Asymp. Sig. (2-sided) from Pearson Chi-Square  $< 0.05$ , then  $H_0$  is rejected and  $H_1$  is accepted. In this case, the relationship that occurs between the two categorical variables is statistically significant.

Statistical test results using Pearson chi-square test for the variable use of information resources based on education or the field of study of the users can be seen in the following table.

Table 4 Differences in the Use of Information Resources Based on Study Programs

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	102.650 <sup>a</sup>	92	.047

Based on data from the test results in the above table, the Asymp value. Sig. (2-sided) is 0.047, where the Asymp value. Sig. (2-sided) 0.047, smaller than the significance level  $\alpha = 0.05$ , then according to the criteria or significance measure above, it can be concluded that the relationship that occurs between education or the field of study on the use of information resources is statistically significant. It means that there are significant differences in the use of information resources based on the study program or field of study of the users' in the USU Library. The research hypothesis stating it is suspected that there are significant differences in the use of information resources based on user study programs at the USU Library is accepted.

#### b. Differences in the Use of Printed Information Resources Based on Education

The results of testing the differences in the use of printed information resources based on the respondents' study program or field of study can be seen in the following table.

Table 5 Differences in the Use of Printed Information Resources Based on Study Programs

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	147.916 <sup>a</sup>	92	.000

The test results in the table above show that the Asymp value. Sig. (2-sided) is 0,000, where the Asymp value. Sig. (2-sided) 0,000, smaller than the significance level  $\alpha = 0.05$ , then according to the criteria or significance measure above it can be concluded that the relationship that occurs between education or the field of study on the use of printed information resources is statistically significant. That means that there are significant differences in the use of printed information resources based on study programs in USU Library. The research hypothesis stating it is suspected that there are significant differences in

the use of printed information resources based on users' study programs or fields of study at USU Library is accepted.

### c. Differences in Use of Electronic Information Resources Based on Study Programs

The results of testing the differences in the use of electronic information resources based on the respondents' study program or field of study can be seen in the following table.

Table 6 Differences in the Use of Electronic Information Resources Based on Study Programs

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	128.517 <sup>a</sup>	92	.007

The test results in the table above shows that the Asymp value. Sig. (2-sided) is 0.007, where the Asymp value. Sig. (2-sided) 0.007, smaller than the significance level  $\alpha = 0.05$ , then according to the criteria or significance measure above it can be concluded that the relationship that occurs between education or the field of study on the use of electronic information resources is statistically significant. It means that there are significant differences in the use of electronic information resources based on users' study programs at USU Library. The research hypothesis stating it is suspected that there are significant differences in the use of electronic information resources based on users' study programs in USU Library are accepted.

## 5. CONCLUSIONS AND RECOMMENDATIONS

Based on the results and discussion above, the following conclusions can be made:

- The majority of undergraduate students at the University of North Sumatra tends to use electronic information resources more than printed information resources. However, for textbook types, students tend to use printed books more than e-books.
- There are significant differences in the use of information resources based on the users' study program or field of study in USU Library. Students from different study programs tend to have different patterns of using, accessing or reading various types of information resources both available in libraries and from other sources.
- There are significant differences in the use of printed and electronic information resources based on users' study programs in USU Library. There is a tendency for students from exact-sciences study programs to use electronic information resources more frequently than the students from non-exact science study programs and conversely students from non-exact science study programs tend to use printed information resources more often.
- The majority of students stated that it was easier to search and find electronic information resources, but it was more convenient to read printed information resources. The majority of students stated that reading textbooks and other supporting books is more convenient than reading e-books, but using e-journals more often than printed journals and it is easy to find articles on the internet.
- Printed and electronic information resources are equally used by students, both via libraries and via other sources, with different frequencies; so the issue of providing electronic resources only in college libraries is not yet needed to be applied at USU Library.

Related to the conclusions above, two important things are recommended as follows:



**First.** Although there is a tendency for undergraduate students to use electronic information resources more than printed ones, it does not mean that they abandoned printed information resources. For certain types of information resources, students prefer printed information resources for various reasons. In connection with this, the concept of hybrid library is very appropriate to be developed in the development of the university library service system, including in USU Library. The concept of hybrid libraries, by a number of library researchers and observers, is referred to as a model for developing university library service systems in the 21st century (Allen 2005, 291-301). Rushbridge (1998), explains that, "hybrid libraries as those containing a mix of traditional print and a growing number of electronic-based resources". Simply put, a hybrid library can be called a combination of digital collections (e-books / electronic books) and conventional collections (printed books). Now, hybrid libraries have become a new norm in a number of college libraries of developed countries and began to be developed in a number of college libraries in developing countries (Ogbonna, Igewsi and Enweani, 2014).

**Second.** The data in Tables 2 and 3 describe that all types of printed and electronic information resources are used by students with varying frequencies. Data in both tables indicate that the more choices of information resource services provided by the library, the more the library users tend to be. So that diversification of information resources and service facilities is increasingly needed in the development of higher education libraries. Diversification of information resources and library services is referred to as diversification of library services. Begg (2009) in his research article entitled, "Death or diversification? The use of space in public library buildings", explains that a number of public libraries that remain with the traditional system will die (closed) if they do not diversify in services, collections and also diversify the arrangement of rooms and library buildings. The concept of diversification of library service now continues to be studied and refined, and it has been applied, including in the university library by a number of libraries in Europe, especially in Britain. Wills (2003) and Tower Hamlets Borough Council (2007) observed a number of public libraries that have diversified services and they reported that there was an increase in library visits, books borrowing at the library was more stable, the library condition was getting better and the community response to the library was increased.

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